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G-000-103 .87

APPLICATION FOR PERMIT TO DISCHARGE STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY - FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP)

09/29/92

DOE-2717-92
DOE-FN OEPA
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PTD

Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6357

SEP 29 1992

DOE-2717-92

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Mr. Thomas A. Winston, Chief
Ohio Environmental Protection Agency
Southwest District Office
40 South Main Street
Dayton, Ohio 45402

Dear Mr. Winston:

APPLICATION FOR PERMIT TO DISCHARGE STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY - FERNALD ENVIRONMENTAL MANAGEMENT PROJECT (FEMP)

Enclosed are completed application forms EPA 3510-1, "General Information" and Environmental Protection Agency 3510-2F, "Application For Permit To Discharge Stormwater Associated with Industrial Activity" and a check in the amount of $15.00 to cover the application fee.

This application has been prepared by employees of Westinghouse Environmental Management Company of Ohio (WEMCO). With their assurances that the application is true, complete, and accurate, the application has been signed by Department of Energy (DOE).

Pursuant to OAC 3745-38-05, "Exclusion From General Permit Coverage", this letter also serves to request that FEMP stormwater associated with construction activity be addressed in a combined permit issued for both industrial activity and construction activity related stormwater runoff for the following reasons:

- When construction activity occurs in the drainage areas discharging through the outfalls included in this application, the outfalls will contain both runoff associated with construction activity and runoff associated with industrial activity. As written, the draft General Permit for stormwater associated with construction activity is applicable to only those outfalls discharging exclusively construction related stormwater runoff. (Part I. (B)(1) of the draft General Permit)

- With the submission of this permit application, all FEMP point source stormwater discharges are either covered by an existing permit or addressed in an application. The three stormwater outfalls currently permitted under existing NPDES permit 1I000004*CD include:

*4002 - Stormwater Retention Basin Spillway;
*4604 - Stormsewer Lift Station;
*4606 - Stormwater Retention Basin Discharge to Manhole 175

These permitted outfalls receive runoff from the process area. Construction activity in the process area will not require further permitting as our obligation is to meet the current effluent limitations at these three outfalls.

- As a CERCLA site, the FEMP will undergo a continuous program of construction/renovation for a significant period of time. We believe it desirable for both the FEMP and the State of Ohio to reduce the permitting burden whenever possible.

If you have any questions on the application or our request for coverage, please contact Ed Skintik at 513-738-6660.

Sincerely,

W. D. Adams
Acting Manager

FN:Skintik

Enclosure: As Stated

cc w/o enc.:

K. A. Hayes, EM-424, TREV
S. M. Beckman, WEMCO
L. S. Farmer, WEMCO
V. A. Franklin, WEMCO
M. J. Galper, WEMCO
T. J. Walsh, WEMCO
N. C. Kaufman, FERMCO

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Please print or type in the unshaded areas only

EPA ID Number *(copy from Item I of Form 1)*
0H0009580

Form Approved. OMB No. 2040-0086
Approval expires 5-31-92

Form 2F NPDES

United States Environmental Protection Agency
Washington, DC 20460

Application for Permit To Discharge Stormwater Discharges Associated with Industrial Activity

Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information, or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M St., SW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

I. Outfall Location

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. Outfall Number *(list)*	B. Latitude			C. Longitude			D. Receiving Water *(name)*
STRM001	39°	17'	17"	84°	41'	32"	Paddy's Run
STRM002	39°	17'	30"	84°	41'	40"	Paddy's Run
STRM003	39°	17'	50"	84°	41'	49"	Paddy's Run
STRM004	39°	18'	14"	84°	41'	51"	Paddy's Run

II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

1. Identification of Conditions, Agreements, Etc.	2. Affected Outfalls		3. Brief Description of Project	4. Final Compliance Date	
	number	source of discharge		a. req.	b. proj.
RCRA Closures - see attached Consent Agreement as Amended Under CERCLA Sections 120 & 106(a)					

B. You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction. SEE ATTACHED

III. Site Drainage Map

Attach a site map showing topography (or indicating the outline of drainage areas served by the outfall(s) covered in the application if a topographic map is unavailable) depicting the facility including: each of its intake and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each known past or present areas used for outdoor storage or disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied; each of its hazardous waste treatment, storage or disposal units (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which receive storm water discharges from the facility. SEE ATTACHED

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inued from the Front

Narrative Description of Pollutant Sources

For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

fall ber	Area of Impervious Surface (provide units)	Total Area Drained (provide units)	Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)
M001	11.8 acres	553.5 acres	STRM003	1.4 acres	81.62 acres
M002	0 acres	22.9 acres	STRM004	2.7 acres	197.8 acres

Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed, in the last three years, to minimize contact by these materials with storm water runoff; materials loading and access areas; and the location, manner and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

SEE ATTACHED

For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

fall ber	SEE ATTACHED ALSO Treatment	List Codes from Table 2F-1
M001	None	N/A
M002	None	N/A
M003	None	N/A
M004	None	N/A

Nonstormwater Discharges

I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of nonstormwater discharges, and that all nonstormwater discharges from these outfall(s) are identified in either an accompanying Form 2C or Form 2E application for the outfall.

e and Official Title (type or print)	Signature	Date Signed
W. D. Adams, Acting Manager	W. D. Adams	9-29-92

Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test

ach outfall was visually inspected during dry periods.
hese outfalls are removed from the production area and are not amenable to
rocess wastewater discharges. Outfalls were completely dry during inspection.
nspections were conducted by WEMCO and DOE personnel.

Significant Leaks or Spills

ovide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three ears, including the approximate date and location of the spill or leak, and the type and amount of material released.

EE ATTACHED

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OUTFALL STRM 001

	1/3/92				3/26/92							
SAMPLE NUMBER	911123213		911123201		921123919		921123920		MAX	MAX	MAX	MAX
	GRAB	GRAB	Q COMP.	Q COMP.	GRAB	GRAB	Q COMP.	Q COMP.	GRAB	GRAB	Q COMP.	Q COMP
PARAMETER	MG/L	LBS.	MG/L	LBS.	MG/L	LBS.	MG/L	LBS.	MG/L	LBS.	MG/L	LBS.
OIL & GREASE	12	761.28	NA	NA	< 5	< 34.89	NA	NA	12	761.28	NA	NA
BOD	47	2981.69	41.2	2613.74	0.42	2.93	0.72	5.02	47	2981.69	41.2	2613.74
COD	243	15415.99	76	4821.46	6	41.87	8	55.83	243	15415.99	76	4821.46
TSS	497	31529.83	324	20554.66	< 2	< 13.96	< 2	< 13.96	497	31529.83	324	20554.66
TKN	7.89	500.54	6.05	383.81	0.31	2.16	0.34	2.37	7.89	500.54	6.05	383.81
NITRATE + NITRITE - N	1	63.44	1	63.44	1	6.98	1	6.98	1	63.44	1	63.44
TOTAL PHOSPHORUS	2.14	135.76	2.11	133.86	0.01	0.07	0.01	0.07	2.14	135.76	2.11	133.86
PH (SU)	7.4	NA	7.4	NA	8.3	NA	8.3	NA	8.3	NA	8.3	NA
AMMONIA-N	2.57	163.04	1.81	114.83	< 0.1	< 0.70	< 0.1	< 0.70	2.57	163.04	1.81	114.83
NITRATE-N	1	63.44	1	63.44	1	6.98	1	6.98	1	63.44	1	63.44
CYANIDE	< 0.005	< 0.317	NA	NA	< 0.005	< 0.035	NA	NA	< 0.005	< 0.317	NA	NA
FLUORIDE	0.21	13.32	0.18	11.42	0.03	0.21	0.23	1.61	0.21	13.32	0.23	11.42
CHROMIUM	0.039	2.474	0.0299	1.897	< 0.002	< 0.014	0.0038	0.027	0.039	2.474	0.0299	1.897
CHROMIUM +6	0.0101	0.641	0.0108	0.685	< 0.006	< 0.042	< 0.006	< 0.042	0.0101	0.641	0.0108	0.685
COPPER	< 0.02	< 1.269	< 0.02	< 1.269	< 0.02	< 0.140	< 0.02	< 0.140	< 0.02	< 1.269	< 0.02	< 1.269
LEAD	0.0171	1.085	0.0128	0.812	< 0.003	< 0.021	0.0051	0.036	0.0171	1.085	0.0128	0.812
NICKEL	0.044	2.791	0.033	2.094	< 0.01	< 0.070	< 0.01	< 0.070	0.044	2.791	0.033	2.094
SILVER	< 0.001	< 0.063	< 0.001	< 0.063	< 0.001	< 0.007	< 0.001	< 0.007	< 0.001	< 0.063	< 0.001	< 0.063
CADMIUM	< 0.001	< 0.063	< 0.001	< 0.063	< 0.001	< 0.007	< 0.001	< 0.007	< 0.001	< 0.063	< 0.001	< 0.063
MOLYBDENUM	< 0.01	< 0.634	< 0.001	< 0.063	< 0.01	< 0.070	< 0.01	< 0.070	< 0.01	< 0.634	< 0.01	< 0.070
ARSENIC, HYDRIDE	< 0.005	< 0.317	< 0.005	< 0.317	< 0.005	< 0.035	< 0.005	< 0.035	< 0.005	< 0.317	< 0.005	< 0.317
SULFATES	175	11102.05	150	9516.04	70	488.49	60	418.71	175	11102.05	150	9516.04
BORON	0.36	22.84	0.2	12.69	0.15	1.05	0.14	0.98	0.36	22.84	0.2	12.69
IRON	20.3	1287.84	14.2	900.85	< 0.1	< 0.70	< 0.1	< 0.70	20.3	1287.84	14.2	900.85
SELENIUM, HYDRIDE	< 0.005	< 0.317	< 0.005	< 0.317	< 0.005	< 0.035	< 0.005	< 0.035	< 0.005	< 0.317	< 0.005	< 0.317
BARIUM	< 0.2	< 12.69	< 0.2	< 12.69	NR	NR	NR	NR	< 0.2	< 12.69	< 0.2	< 12.69
MERCURY	<0.0002	< 0.0127	<0.0002	< 0.0127	NR	NR	NR	NR	<0.0002	< 0.0127	<0.0002	< 0.0127
COLOR (C.U.)	40	NA	40	NA	< 1	< NA	< 1	< NA	40	NA	40	NA
FECAL COLIFORM (#/100 ml)	3320	NA	NA	NA	5	NA	NA	NA	3320	NA	NA	NA
SURFACTANTS	AE	AE	AE	AE	NR	NR	NR	NR	AE	AE	AE	AE
ALUMINUM	13.7	869.13	9.33	591.90	< 0.2	< 1.40	< 0.2	< 1.40	13.7	869.13	9.33	591.90
MAGNESIUM	12.7	805.69	10.2	647.09	22.4	156.32	22.4	156.32	22.4	805.69	22.4	647.09
TITANIUM	< 1	< 63.44	< 1	< 63.44	< 1	< 6.98	< 1	< 6.98	< 1	< 63.44	< 1	< 63.44
URANIUM	0.001	0.06	0.0051	0.32	0.0094	0.07	0.01	0.07	0.0094	0.07	0.01	0.32
ZINC	0.137	8.69	0.097	6.15	< 0.02	< 0.14	0.026	0.18	0.137	8.69	0.097	6.15
CARBON TETRACHLORIDE	< 0.001	< 0.063	< 0.001	< 0.063	< 0.001	< 0.007	< 0.001	< 0.007	< 0.001	< 0.063	< 0.001	< 0.063
1,1 DICHLOROETHYLENE	< 0.001	< 0.063	< 0.001	< 0.063	< 0.001	< 0.007	< 0.001	< 0.007	< 0.001	< 0.063	< 0.001	< 0.063
TETRACHLOROETHENE	< 0.001	< 0.063	< 0.001	< 0.063	< 0.001	< 0.007	< 0.001	< 0.007	< 0.001	< 0.063	< 0.001	< 0.063
1,1,2,2 TETRACHLOROETHANE	< 0.001	< 0.063	< 0.001	< 0.063	< 0.001	< 0.007	< 0.001	< 0.007	< 0.001	< 0.063	< 0.001	< 0.063
1,1,1 TRICHLOROETHANE	< 0.001	< 0.063	< 0.001	< 0.063	< 0.001	< 0.007	< 0.001	< 0.007	< 0.001	< 0.063	< 0.001	< 0.063
1,1,2 TRICHLOROETHANE	< 0.001	< 0.063	< 0.001	< 0.063	< 0.001	< 0.007	< 0.001	< 0.007	< 0.001	< 0.063	< 0.001	< 0.063
PENTACHLOROPHENOL	< 0.008	< 0.508	<0.0084	< 0.533	< 0.004	< 0.028	< 0.005	< 0.035	< 0.008	< 0.508	<0.0084	< 0.533
TOTAL ALPHA (pCi/ML;Ci)	NR	NR	NR	NR	< 0.12	< 0.0004	< 0.12	< 0.0004	< 0.12	< 0.0004	< 0.12	< 0.0004
TOTAL BETA (pCi/ML;Ci)	NR	NR	NR	NR	< 0.22	< 0.0007	< 0.22	< 0.0007	< 0.22	< 0.0007	< 0.22	< 0.0007
MANGANESE	0.434	27.53	0.309	19.60	0.02	0.14	0.02	0.14	0.434	27.53	0.309	19.60

AE = DATA NOT VALID
NA = NOT APPLICABLE
NR = NOT REQUESTED

AVG GRAB MG/L	AVG GRAB LBS.	AVG Q COMP. MG/L	AVG Q COMP. LBS.
11.31	398.09	NA	NA
42.38	1492.31	37.18	1309.38
219.49	7728.93	69.25	2438.65
447.89	15771.89	292.06	10284.31
7.14	251.35	5.48	193.09
1	35.21	1	35.21
1.93	67.92	1.90	66.96
NA	NA	NA	NA
2.32	81.87	1.64	57.76
1	35.21	1	35.21
< 0.005	< 0.176	NA	NA
0.19	6.77	0.18	6.51
0.035	1.244	0.027	0.962
0.010	0.341	0.010	0.364
< 0.020	< 0.704	< 0.020	< 0.704
0.016	0.553	0.012	0.424
0.041	1.431	0.031	1.082
< 0.001	< 0.035	< 0.001	< 0.035
< 0.001	< 0.035	< 0.001	< 0.035
< 0.010	< 0.352	< 0.002	< 0.067
< 0.005	< 0.176	< 0.005	< 0.176
164.58	5795.27	141.07	4967.38
0.34	11.94	0.19	6.83
18.30	644.27	12.80	450.78
< 0.005	< 0.176	< 0.005	< 0.176
< 0.20	< 12.69	< 0.20	< 12.69
<0.0002	< 0.0127	<0.0002	< 0.0127
NA	NA	NA	NA
NA	NA	NA	NA
AE	AE	AE	AE
12.36	435.26	8.42	296.65
13.66	481.00	11.41	401.70
< 1	< 35.21	< 1	< 35.21
0.0018	0.06	0.01	0.20
0.13	4.42	0.09	3.17
< 0.001	< 0.035	< 0.001	< 0.035
< 0.001	< 0.035	< 0.001	< 0.035
< 0.001	< 0.035	< 0.001	< 0.035
< 0.001	< 0.035	< 0.001	< 0.035
< 0.001	< 0.035	< 0.001	< 0.035
< 0.001	< 0.035	< 0.001	< 0.035
< 0.008	< 0.268	< 0.008	< 0.284
< 0.12	< 0.0004	< 0.12	< 0.0004
< 0.22	< 0.0007	< 0.22	< 0.0007
0.39	13.84	0.28	9.87

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OUTFALL STRM 002

SAMPLE NUMBER	6/18/92 921124443 GRAB MG/L	GRAB LBS.	921124444 Q COMP. MG/L	Q COMP. LBS.	MAX GRAB MG/L	MAX GRAB LBS.	MAX Q COMP. MG/L	MAX Q COMP. LBS.	AVG GRAB MG/L	AVG GRAB LBS.	AVG Q COMP. MG/L	AVG Q COMP. LBS.
PARAMETER												
OIL & GREASE	< 5	< 11.86	< 5	< 11.86	< 5	< 11.86	< 5	< 11.86	< 5	< 11.86	< 5	< 11.86
BOD	AE	AE	AE	AE	AE	AE	AE	AE	AE	AE	AE	AE
COD	71	168.42	64	151.81	71	168.42	64	151.81	71	168.42	64	151.81
TSS	350	830.22	125	296.51	350	830.22	125	296.51	350	830.22	125	296.51
TKN	1.33	3.15	1.19	2.82	1.33	3.15	1.19	2.82	1.33	3.15	1.19	2.82
NITRATE + NITRITE - N	0.6	1.42	0.8	1.90	0.6	1.42	0.8	1.90	0.6	1.42	0.8	1.90
TOTAL PHOSPHORUS	1.51	3.58	0.62	1.47	1.51	3.58	0.62	1.47	1.51	3.58	0.62	1.47
PH (SU)	7	NA	7	NA	7	NA	7	NA	NA	NA	NA	NA
AMMONIA-N	< 0.1	< 0.24	< 0.1	< 0.24	< 0.1	< 0.24	< 0.1	< 0.24	< 0.1	< 0.24	< 0.1	< 0.24
NITRATE-N	0.6	1.42	0.8	1.90	0.6	1.42	0.8	1.90	0.6	1.42	0.8	1.90
CYANIDE	< 0.005	< 0.012	NA	NA	< 0.005	< 0.012	NA	NA	< 0.005	< 0.012	NA	NA
FLUORIDE	0.27	0.64	0.81	1.92	0.27	0.64	0.81	1.92	0.27	0.64	0.81	1.92
CHROMIUM	0.0172	0.041	0.0208	0.049	0.0172	0.041	0.0208	0.049	0.0172	0.041	0.0208	0.049
CHROMIUM +6	< 0.006	< 0.014	< 0.006	< 0.014	< 0.006	< 0.014	< 0.006	< 0.014	< 0.006	< 0.014	< 0.006	< 0.014
COPPER	< 0.02	< 0.047	< 0.02	< 0.047	< 0.02	< 0.047	< 0.02	< 0.047	< 0.02	< 0.047	< 0.02	< 0.047
LEAD	0.0076	0.018	0.0068	0.016	0.0076	0.018	0.0068	0.016	0.0076	0.018	0.0068	0.016
NICKEL	0.015	0.036	0.016	0.038	0.015	0.036	0.016	0.038	0.015	0.036	0.016	0.038
SILVER	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002
CADMIUM	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002
MOLYBDENUM	< 0.01	< 0.024	< 0.01	< 0.024	< 0.01	< 0.024	< 0.01	< 0.024	< 0.01	< 0.024	< 0.01	< 0.024
ARSENIC, HYDRIDE	< 0.005	< 0.012	< 0.005	< 0.012	< 0.005	< 0.012	< 0.005	< 0.012	< 0.005	< 0.012	< 0.005	< 0.012
SULFATES	115	272.79	104	246.69	115	272.79	104	246.69	115	272.79	104	246.69
BORON	0.11	0.26	0.12	0.28	0.11	0.26	0.12	0.28	0.11	0.26	0.12	0.28
IRON	7.2	17.08	7.19	17.06	7.2	17.08	7.19	17.06	7.2	17.08	7.19	17.06
SELENIUM, HYDRIDE	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
BARIUM	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
MERCURY	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
COLOR (C.U.)	AE	NA	AE	NA	AE	NA	AE	NA	AE	NA	AE	NA
FECAL COLIFORM (#/100 ml)	94500	NA	NA	NA	94500	NA	NA	NA	94500	NA	NA	NA
SURFACTANTS	AE	AE	AE	AE	AE	AE	AE	AE	AE	AE	AE	AE
ALUMINUM	6.74	15.99	7.19	17.06	6.74	15.99	7.19	17.06	6.74	15.99	7.19	17.06
MAGNESIUM	9.3	22.06	10.4	24.67	9.3	22.06	10.4	24.67	9.3	22.06	10.4	24.67
TITANIUM	< 1	< 2.37	< 1	< 2.37	< 1	< 2.37	< 1	< 2.37	< 1	< 2.37	< 1	< 2.37
URANIUM	0.2	0.47	< 0.1	< 0.24	0.2	0.47	< 0.1	< 0.24	0.2	0.47	< 0.1	< 0.24
ZINC	0.084	0.20	0.071	0.17	0.084	0.20	0.071	0.17	0.084	0.20	0.071	0.17
CARBON TETRACHLORIDE	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002
1,1 DICHLOROETHYLENE	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002
1,1,2,2 TETRACHLOROETHANE	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002
TETRACHLOROETHENE	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002
1,1,1 TRICHLOROETHANE	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002
1,1,2 TRICHLOROETHANE	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002	< 0.001	< 0.002
PENTACHLOROPHENOL	< 0.004	< 0.009	< 0.005	< 0.012	< 0.004	< 0.009	< 0.005	< 0.012	< 0.004	< 0.009	< 0.005	< 0.012
TOTAL ALPHA (pCi/ML;Ci)	< 0.094	< 0.0001	< 0.094	< 0.0001	< 0.094	< 0.0001	< 0.094	< 0.0001	< 0.094	< 0.0001	< 0.094	< 0.0001
TOTAL BETA (pCi/ML;Ci)	< 0.34	< 0.0004	< 0.34	< 0.0004	< 0.34	< 0.0004	< 0.34	< 0.0004	< 0.34	< 0.0004	< 0.34	< 0.0004
MANGANESE	0.158	0.37	0.16	0.38	0.158	0.37	0.16	0.38	0.158	0.37	0.16	0.38

AE = DATA NOT VALID
NA = NOT APPLICABLE
NR = NOT REQUESTED

INTRODUCTION TO STORMWATER DATA

Stormwater samples were collected manually. The first grab samples were collected as soon as possible after flow was observed at the outfall. Because of the nature of the drainage areas, flow was not observed at outfalls STRM 001, STRM 002, and STRM 004 until well after the first 30 minutes of the event. Rainfall measurements were taken and a sample was collected approximately every 20 minutes. These aliquots were then combined into a composite sample based on the percentage of the corresponding rainfall between sampling periods to the total rainfall observed during the event.

Mass loadings for both the grab sample and the flow weighted sample are based on the total rainfall observed during the event. Average concentration data are volume weighted. Average mass data are the additive mass divided by the number of events sampled.

There are three discharge points for drainage area STRM 002. The only industrial area located within this drainage area is the inactive fly ash pile. As such, only the primary discharge point was sampled. Concentration data are assumed to be equivalent for each of the three discharge points. Mass data for STRM 002 is based on the entire drainage area.

A small amount of flow at the sample collection point for STRM 003 has been observed during dry periods. The conveyance channel is deeply incised into the surrounding upland area and receives groundwater from numerous seeps along it's base on a nearly continuous basis. Further evidence of prolonged periods of wetness can also be attributed to the predominance of wetland vegetation which dominates the channel for almost it's entire length. During the course of visual inspection old field tiles have been found indicating additional drainage into the channel. A review of historical records and process knowledge as well as visual inspection of the channel indicates no known source of process related wastewater. The point of entry into Paddy's run, approximately 200 ft. downstream of the sample collection point, has been observed as completely dry during dry periods.

POLLUTANTS ANALYZED BY NET MIDWEST INC.

The following parameters were analyzed by NET Midwest Inc. All other analyses were done on site by the FEMP analytical laboratories.

Aluminum
Arsenic
Barium
Boron
Cadmium
Carbon tetrachloride
Chromium
Color
Copper
Cyanide
Iron
Lead
Magnesium
Manganese
Mercury
Molybdenum
Nickel
Nitrogen, Kjeldahl
Pentachlorophenol
Selenium
Silver
Surfactants
Tetrachloroethene
Toluene
Titanium
Zinc
1,1-Dichloroethene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane

Form 3510-2F: Section II. B.

The following describes ongoing or future stormwater runoff related projects. Projects being done under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) are identified as such.

1. Waste Pit Area Stormwater Runoff Control Removal Action (CERCLA)

   The Waste Pit Area Stormwater Runoff Control Removal Action project provides for stormwater runoff collection for the perimeter areas of Pits 1 through 6, the Burn Pit, Clearwell, and the four concrete waste storage silos that include the K-65 silos. The collected stormwater from the areas around these units will be directed to a central collection sump and pumped via force main to the Biodenitrification Surge Lagoon (BSL) and discharged through NPDES outfall *4605. These flows are ultimately intended to be treated in the Advanced Waste Water Treatment Facility. Construction was completed June 15, 1992. Operation commenced July 30, 1992.

2. Storm Sewer Improvements Project (CERCLA)

   The Storm Sewer Improvements Project is a two-fold project that will address stormwater runoff from the production area of the FEMP as defined by the inner security fence line. The first part of this project will provide for the rehabilitation and/or repair of portions of the current storm sewer system that have been, or in the process of, being identified. The second aspect of the project will extend the existing storm sewer system so that all portions of the production area are collected in the existing Stormwater Retention Basin (SWRB). Construction is anticipated to begin in September 1992 and be completed in August 1993. The second phase of this project is being completed as CERCLA Removal Action #16.

3. Fly Ash Pile Project (CERCLA)

   Actions to address wind erosion and runoff control is currently underway. Silt fences have been installed around the perimeter of the pile to minimize solids migration due to runoff. Other actions planned include wind barriers, dust control, and various administrative controls. These actions are being completed as CERCLA Removal Action No. 10.

4. Manhole 34 Spill Control Project

   This project will make modifications to Manhole 34 to allow all flow through the storm sewer system to flow by gravity directly to the Stormwater Retention Basin (SWRB). This will eliminate the pumping of "low flow" stormwater in the storm sewer system directly to Manhole 175 and allow all stormwater to undergo 24-hr settling at the SWRB before discharge to the Great Miami River. This project also makes provisions for intercepting spills at MH-34 and returning these back to the General Sump for treatment or other disposition. The Application for a Permit to Install, Application No. 05-5127, was approved by OEPA-SWDO and became effective March 16, 1992. Construction is scheduled to begin in

December 1992.

5. The Advanced Wastewater Treatment Project

The Advanced Wastewater Treatment Project (AWWT) will provide the ability to treat both process wastewater (400 gpm) and collected stormwater (700 gpm). Runoff from the process area, collected and discharged into the SWRB, will be routed to the AWWT for removal of uranium. Construction is scheduled to begin in October 1992.

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SITE MEDIA SAMPLING PLAN

STORMWATER DISCHARGE NPDES PERMIT PROJECT

PREPARED BY: Jeanne A Knoop (ENGINEER/TECHNOLOGIST) DATE: 9-20-91

REVIEWED BY: Greg Henderson (ENGINEER/TECHNOLOGIST) DATE: 9-23-91

APPROVED BY: Thomas E Buhl (MANAGER SMS) DATE: 9-30-91

APPROVED BY: Donald A Ph (QA/QC) DATE: 9/30/91

Note : Revisions to this document are indicated by *italics*.

1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

A request for Environmental Media Sampling (Sample Request # EM-SMS-112) has been forwarded to Environmental Monitoring - Site Media Sampling (EM-SMS) for stormwater discharge sampling and characterization in support of *an application for* National Pollutant Discharge Elimination System (NPDES) permitting for four (4) outfalls to Paddy's Run.

In general, a majority of stormwater runoff *from* the FEMP *areas of industrial activities* is controlled and collected by two systems. Runoff from the Process Area, Administration Area, and the parking lots is collected by the Stormwater Retention Basin (SWRB) and is discharged through Manhole 175 to the Great Miami River. Stormwater runoff from *the surface of Waste Pits 1, 2, 3 and 5* (along the western boundary of the FEMP facility) is collected by the Clearwell and is pumped to the Biodenitrification Surge Lagoon (BSL) for treatment. *Stormwater that accumulates in Waste Pit 6 is pumped directly to the BSL.* Treated runoff is then dischagred through Manhole 175 to the Great Miami River.

Uncontrolled stormwater runoff (direct discharge to Paddy's Run), *pertaining to this project*, exists at the following areas: 1) an outfall trench parallel and north of *the railroad tracks adjacent to* Waste Pit 5 and the ASI Camp, 2) an outfall trench south of the K-65 area

(originating due west of Building 51), 3) an outfall trench west of the inactive flyash pile and the Southfield areas, and 4) an outfall ditch *(Storm Sewer Outfall Ditch - SSOD)* which heads near the SWRB and runs southwest to Paddy's Run.

1.2 PURPOSE OF SAMPLING

EM-SMS has received a sampling request SMS-REQ-112 to extract grab and flow-weighted composite stormwater runoff samples from four outfall trenches discharging to Paddy's Run. The objective of sampling is to provide data for completion of NPDES permit applications for each outfall trench.

2.0 IDENTIFICATION OF KNOWN/SUSPECTED CONTAMINANTS

The contaminants of concern include a variety of radiological, chemical, and metallic elements and compounds. Radiological contaminants such as **thorium-230, radium-226, uranium-238,** and **radon-222** may be present. The following chemical contaminants *may be present*: **oil and grease, volatile organics, sulfates, fluoride, phosphorous, cyanide, nitrates,** and *nitrites*. Suspect metals include: **chromium, copper, lead, nickel, silver, cadmium, molybdenum, arsenic, aluminum, boron, iron, magnesium, manganese, titanium, zinc, selenium, barium,** and **mercury.**

3.0 SAMPLE FIELD SITE

A total of four (4) *stormwater* outfall trenches, located along the western boundary of the FEMP facility, will be sampled. These trenches are designated as follows: 1) STRM001 - the outfall ditch *(SSOD)* which heads near the SWRB and runs southwest to Paddy's Run, 2) STRM002 - the outfall trench west of the inactive flyash pile and the Southfield areas, 3) the outfall trench south of the K-65 area *(due west of Bldg. 51)*, and 4) STRM004 - the outfall trench parallel and north of *the railroad tracks adjacent to* Waste Pit 5 and the ASI Camp.

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SITE MEDIA SAMPLING PLAN

STORMWATER DISCHARGE NPDES PERMIT PROJECT

3.1 SAMPLE LOCATIONS

The location of the stormwater outfall trenches are illustrated in Attachment I. Details concerning the sample locations can be obtained by contacting Frank Johnston - Project Engineer at ext. 8644 or Jerry Gnoose - SMS Sample Coordinator at ext. 9063.

3.1.1 SAMPLES PER LOCATION

Per Environmental Media Sampling Request #SMS-REQ-112 from Frank Johnston, one grab sample and one flow-weighted composite sample will be extracted from each outfall trench and analyzed *(during each significant storm event)* for the following analytical parameters **(see 3.1.2, ANALYTICAL PARAMETERS).** *An acceptable (significant) storm event is classified as at least 0.1 inch total rainfall and within +/- 50% of the average duration and average total rainfall for that area; and at least 72 hours from the previous measurable storm event. Acceptance will be based on site meterology data in combination with other available meterologic data.*

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3.1.2 ANALYTICAL PARAMETERS

N/A if not applicable

CONCURRENCE REQUESTOR _____

The analytical parameters required for NPDES permit applications for each outfall trench location are provided in Attachment II. In addition to these parameters, samples collected at STRM001 and STRM002 ~~should also~~ shall be analyzed for barium and mercury. *Lastly, toluene ~~should~~ shall be added to the list of analytes for sample point location STRM004.*

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3.1.3 REQUIRED SAMPLE VOLUME (LIQUID)

CONCURRENCE FMPC ANALYTICAL _____ 9-23-91

EM-SMS proposes the following sample requirements for this project:

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GRAB SAMPLES

TO BE ANALYZED BY NET LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
1	1 liter	Plastic	cool 4 deg C, H_2SO_4 to pH <2
2	1 liter	Plastic	cool 4 deg C, NaOH to pH >12
3	1 liter	Glass	cool 4 deg C
4	1 liter	Glass	cool 4 deg C
5	1 liter	Plastic	cool 4 deg C
6	1 liter	Plastic	cool 4 deg C, HNO_3 to pH <2
7	4 ounces	Glass	none

Glass substituted for plastic WJH 9/26/91

Note:

Bottle 1 will be analyzed for Total Kjeldahl Nitrogen.
Bottle 2 will be analyzed for Cyanides.
Bottle 3 will be analyzed for Carbon Tetrachloride, 1-1 Dichloroethylene, 1,1,2,2-Tetrachloroethane, Tetrachloroethylene, 1,1,1-Trichloroethane, and 1,1,2-Trichloroethane. *For location STRM004, toluene should also be analyzed from Bottle 4 (note that the holding time for toluene is 7 days from the date of sample collection).*
Bottle 4 will be analyzed for Pentachlorophenol.
Bottle 5 will be analyzed for surfactants.
Bottle 6 will be analyzed for the following metals: chromium, copper, lead, nickel, silver, cadmium, molybdenum, arsenic, aluminum, boron, iron, magnesium, manganese, titanium, uranium, zinc, selenium,. *For locations STRM001 and STRM002, barium and mercury should also be analyzed from Bottle 3 (note 28 day holding time for mercury).*
Bottle 7 will be analyzed color.

TO BE ANALYZED BY FEMP WATER TREATMENT PLANT LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
8	1 liter	Plastic	cool 4 deg C, H_2SO_4 to pH <2
9	1 liter	Glass	cool 4 deg C

Note:

Bottle 8 will be analyzed for Chemical Oxygen Demand (COD) and Total Phosphorous.
Bottle 9 will be analyzed for Biological Oxygen Demand (BOD), Fecal Coliform, and Sulfates.

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TO BE ANALYZED BY FEMP BIOASSAY LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
10	1 liter	Plastic	~~none~~ pH < 2 w/ HNO_3

Note:
Bottle 10 will be analyzed for Total Uranium.

TO BE ANALYZED BY FEMP AAS/ICP LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
11	1 liter	Glass	cool 4 deg C, H_2SO_4 to pH <2
12	1 liter	Plastic	cool 4 deg C

Note:
Bottle 11 will be analyzed for Oil and Grease.
Bottle 12 will be analyzed for Chromium^{+6}.

TO BE ANALYZED BY FEMP EMP LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
13	1 liter	Plastic	cool 4 deg C, H_2SO_4 to pH <2
14	1 liter	Plastic	cool 4 deg C

Note: 13 JAG 9-23-91
Bottle ~~11~~ 14 will be analyzed for Ammonia-Nitrogen.
Bottle ~~12~~ 13 will be analyzed for Nitrate-Nitrogen, Nitrate + Nitrite-Nitrogen, Fluoride, Total Suspended Solids, and pH.

FLOW-WEIGHTED COMPOSITE SAMPLES

TO BE ANALYZED BY NET LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
1	1 liter	Plastic	cool 4 deg C, H_2SO_4 to pH <2
2	1 liter	Glass	cool 4 deg C
3	1 liter	Glass	cool 4 deg C
4	1 liter	Plastic	cool 4 deg C
5	1 liter	Plastic	cool 4 deg C, HNO_3 to pH <2
6	4 ounces	Glass	none

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Note:

Bottle 1 will be analyzed for Total Kjeldahl Nitrogen.
Bottle 2 will be analyzed for Carbon Tetrachloride, 1-1 Dichloroethylene, 1,1,2,2-Tetrachloroethane, Tetrachloroethylene, 1,1,1-Trichloroethane, and 1,1,2-Trichloroethane. *For location STRM004, toluene should also be analyzed from Bottle 4 (note that the holding time for toluene is 7 days from the date of sample collection).*
Bottle 3 will be analyzed for Pentachlorophenol.
Bottle 4 will be analyzed for surfactants.
Bottle 5 will be analyzed for the following metals: chromium, copper, lead, nickel, silver, cadmium, molybdenum, arsenic, aluminum, boron, iron, magnesium, manganese, titanium, uranium, zinc, selenium,. *For locations STRM001 and STRM002, barium and mercury should also be analyzed from Bottle 3 (note 28 day holding time for mercury).*
Bottle 6 will be analyzed color.

TO BE ANALYZED BY FEMP WATER TREATMENT PLANT LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
7	1 liter	Plastic	cool 4 deg C, H_2SO_4 to pH <2
8	1 liter	Glass	cool 4 deg C

Note:

Bottle 7 will be analyzed for Chemical Oxygen Demand (COD) and Total Phosphorous.
Bottle 8 will be analyzed for Biological Oxygen Demand (BOD) and Sulfates.

TO BE ANALYZED BY FEMP BIOASSAY LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
9	1 liter	Plastic	none

Note:

Bottle 9 will be analyzed for Total Uranium.

TO BE ANALYZED BY FEMP AAS/ICP LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
10	1 liter	Plastic	cool 4 deg C

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Note:
Bottle 10 will be analyzed for Chromium^{+6}.

TO BE ANALYZED BY FEMP EMP LABORATORY

BOTTLE NO.	VOLUME	TYPE	PRESERVATIVE
11	1 liter	Plastic	cool 4 deg C, H_2SO_4 to pH <2
12	1 liter	Plastic	cool 4 deg C

Note:
Bottle 11 will be analyzed for Ammonia-Nitrogen.
Bottle 12 will be analyzed for Nitrate-Nitrogen, Nitrate + Nitrite-Nitrogen, Fluoride, and Total Suspended Solids.

4.0 QA/QC REQUIREMENTS

Environmental Monitoring will adhere to the QA/QC requirements as outlined in procedure EM-CS-001 "ENVIRONMENTAL MONITORING ON-SITE MEDIA SAMPLING" for trip blanks, field blanks, and duplicate sampling. Trip and field blanks (deionized water) will be prepared prior to each day of sampling activities and will accompany each sample set to the designated laboratory facility for the analyses indicated in Section 3.1.2.

Equipment rinseate blanks will be collected (on a daily basis) at the completion of sampling activities and will accompany each sample set to the designated laboratory facility for the analyses indicated in Section 3.1.2.

EM-SMS will extract a duplicate sample for this project. The duplicate extraction will be noted in the permanent field logbook. The duplicate sample will be contained, sealed, and labeled in such a way that the receiving laboratory will not know that the sample is a duplicate.

5.0 EQUIPMENT NEEDED

5.1 As a minimum the required equipment and associated forms needed will be those listed in EM internal procedure **EM-CS-001.** In addition, flow meters and rain gages will also be used to provide data for discharge calculations.

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6.0 DECONTAMINATION OF EQUIPMENT

6.1 All equipment used will be decontaminated as per procedure **EM-CS-001.**

7.0 METHODOLOGY OF EXTRACTION

EM-SMS shall perform outfall trench stormwater runoff sampling activities in a manner consistent with **40 CFR 136.** The samples shall be collected from the center of each outfall trench. Sample collection methodologies for the stormwater runoff grab and flow-weighted composite samples are as follows:

7.1 GRAB SAMPLES

7.1.1 Complete Line Items 1-5 on Form 8-1 "STORM EVENT MONITORING, RAIN GAGE TECHNIQUE." See Attachment III.

7.1.2 Record start of rainfall event, time of grab sample collection, rain gage reading, *flow meter reading*, and rain level on Form 8-1.

7.1.3 Collect stormwater runoff (within 30 minutes of start of rainfall event) using a clean *5-gallon stainless steel bucket. Transfer the liquids to a clean one-gallon jar and label as the first flow-weighted composite aliquot. Lastly, transfer a sufficient volume of liquid to a separate one-gallon jar to obtain the grab samples.*

7.1.4 Mix contents within the 1-gallon jar by gently shaking.

7.1.5 Transfer contents to the appropriate sample containers identified in Section 3.1.3.

7.1.6 Repeat 7.1.3 to 7.1.5 until all sample containers have been filled.

7.1.7 Record grab sample pH and temperature on Form 8-1. *Discard* any unused runoff collected

at a point downgradient of the sample point location.

7.1.8 Decontaminate the 1-gallon container and continue flow-weighted composite sample collection activities.

7.2 FLOW-WEIGHTED COMPOSITE SAMPLES

7.2.1 Record the time of sample collection, rain gage reading, rain level, and flow meter reading on Form 8-1. Also, record the composite volume needed.

Note : Rain level for *2nd* aliquot of flow- weighted composite sample is equal to rain gage reading for *2nd* aliqout - rain gage reading for *1st aliquot*.

7.2.2 Collect runoff sample in a 1-gallon jar (other than the one used for grab sampling), seal and label the container and set aside for compositing.

7.2.3 Repeat 7.2.1 and 7.2.2 at 20-minute intervals for a minimum period of at least 3 hours, assuming the duration of the rainfall event lasts 3 hours.

7.2.4 Assuming that the storm events lasts 3 hours, note the rain gage level taken for the last aliquot collected. Record this reading as the Total Rain Gage reading on Form 8-1.

7.2.5 Add the values in the Rain Level column and record this value in the Totals row on Form 8-1. The Total Rain Level should be equal to the Total Rain Gage reading.

7.2.6 Obtain the respective Percent of Event values by dividing each rain level by the Total Rain Level and record on Form 8-1.

7.2.7 Add all Percent of Event values and record this number (should be 100) on Form 8-1.

7.2.8 Determine the volume to be composited by converting each Percent of Event value to decimal form (ie 0.xx). Multiply each decimal value times the Composite Volume Needed. Record each Volume to Composite number on Form 8-1.

7.2.9 Using a graduated cylinder (1000 ml) transfer the appropriate Volume to Composite (from the appropriate 1-gallon container set aside duirng aliquot collection) to the 1-gallon container used during grab sample collection.

7.2.10 Mix the contents in the 1-gallon jar by gently shaking and transfer to the appropriate sample containers identified in Section 3.1.3.

7.2.11 Record Total Rain Gage Level and flow meter reading at the end of the duration event or within nine (9) hours of the start of the rainfall event, whichever occurs first.

8.0 HEALTH AND SAFETY

The work to be performed and outlined in this sampling plan will be accomplished in accordance with the FEMP Site Health and Safety Plan, the Environmental Monitoring Health and Safety Plan, and the Project Specific Health and Safety Plan (see Attachment IV).

EM-SMS technicians will comply to all precautionary surveys performed by the FEMP employees representing Industrial Hygiene, Radiological Safety, and Safety Engineering. EM-SMS shall obtain a FEMP Work Permitand a Radiation Work Permit, which will be posted at the job site. Concurrence to all applicable safety permits (indicated by signature of the EM-SMS technicians assigned to the project) is expected in the performance of their assigned duties.

The responsible sampling team lead will insure that all EM-SMS technicians performing sampling related to this project has read and understands all applicable surveys that protect worker safety and health. EM-SMS technicians who do not sign the applicable health and safety survey forms will not

participate in the execution of sampling activities related to the completion of assigned project responsibilities. A copy of all applicable safety surveys issued for worker safety and health shall be stored for easy reference in the applicable project files maintained by **ENVIRONMENTAL MONITORING.**

9.0 DEPARTMENT OF TRANSPORTATION (DOT) PACKAGING, MARKING/LABELING REQUIREMENTS

CONCURRENCE DOT INTEGRATION Betty Brewer 9/27/91

As specified in **49 CFR 173.421**, the following criteria will be evaluated to determine the appropriate DOT packaging, marking and labeling requirements:

1) If the package does not contain more than 15 grams of uranium 235, or the radiation level at any point on the external surface does not exceed 0.5 millirem per hour, then use:

   * **Proper Shipping Name for Liquids or Solids:**
     Radioactive Material, Limited Quantity, N.O.S.
     (laboratory specimen for analysis)

   * **Hazard Class:**
     Radioactive Material

   * **Identification Number:**
     UN2910

   * **Labeling/Marking:**
     The word "Radioactive" shall be on each bottle. Each container shall have "Radioactive Material, Limited Quantity" and "Danger, Cargo Aircraft Only".

   * **Packaging:**
     The materials shall be packaged in strong, tight packages that will not leak any of the radioactive materials during conditions normally incident to transportation.

2) If the package contains more than 15 grams of Uranium 235, or the radiation level at any point on the external surface of the package exceeds 0.5 millirem per hour, use:

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* **Proper Shipping Name for Liquids or Solids:**
  Radioactive Material, LSA(D) N.O.S.
  (laboratory specimen for analysis)

* **Hazard Class:**
  Radioactive Material

* **Identification Number:**
  UN2912

* **Labeling/Marking:**
  Radioactive Yellow II or Radioactive Yellow III label (determined by radiation monitoring levels at a distance of one meter from the surface of the outer container) and "Danger, Cargo Aircraft Only".

* **Packaging:**
  DOT 7A, Type A packaging must be used. The exterior of each package must be marked "USA DOT 7A Type A" and "Radioactive". DOT 17-C (5 gallon pail) is an approved package.

EM-SMS will comply with **49 CFR 173.421** regulations for sample overpackaging to maintain sample preservation temperatures per EPA regulations contained within SW-846.

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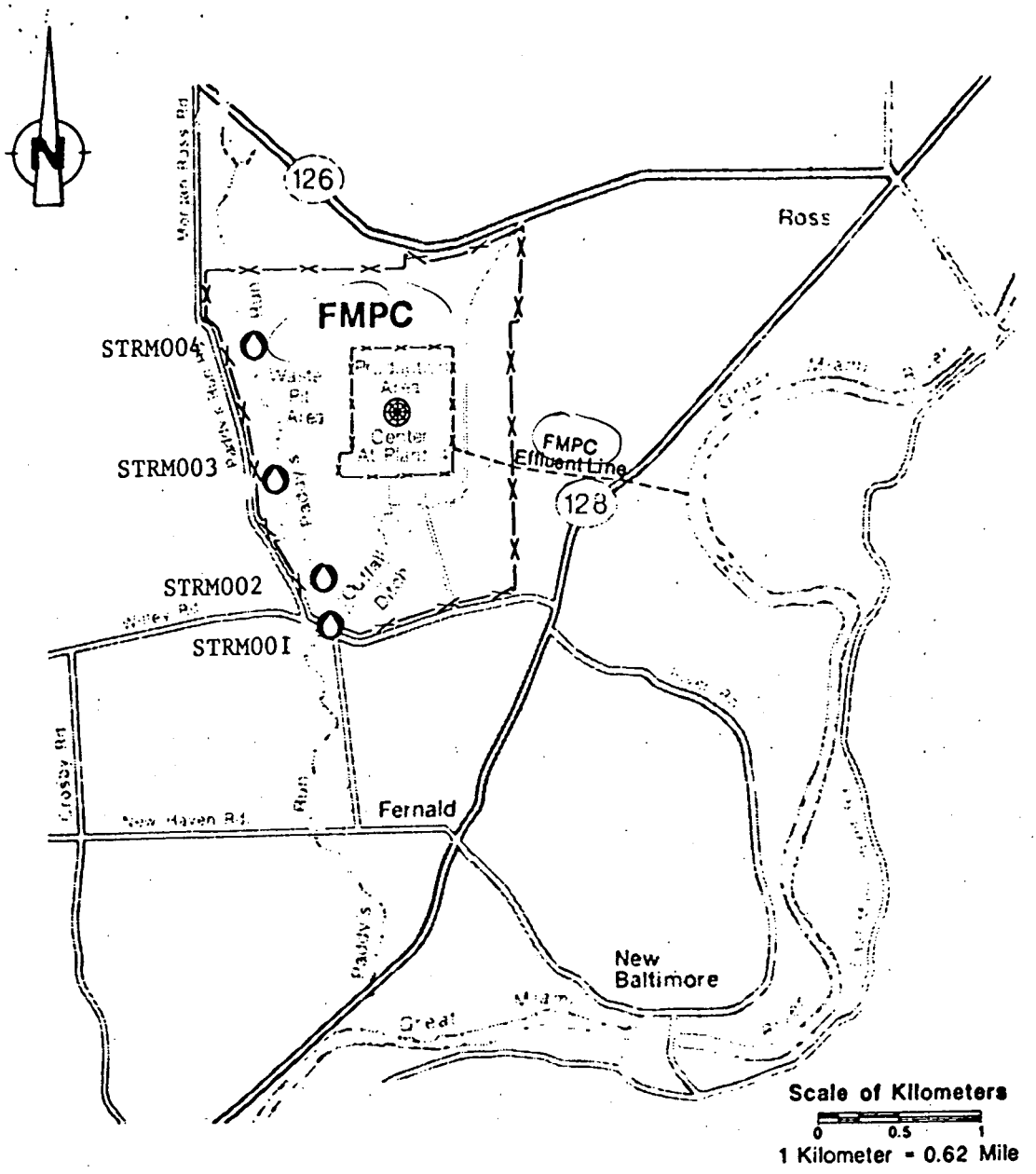
ATTACHMENT I

SAMPLE POINT LOCATIONS



LEGEND

- Sampling Location
- Distance from Center of Production Area to Sampling Locations off Map
- Plant Perimeter
- Production Area Perimeter

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ATTACHMENT II

ANALYTICAL PARAMETERS

Pollutant	Container	Preservation	Max. Holding Time
Oil & Grease	glass	cool, 4°C, H_2SO_4 to pH < 2	28 days
BOD5	plastic or glass	cool, 4°C	48 hrs.
Chemical Oxygen Demand (COD)	plastic or glass	cool, 4°C, H_2SO_4 to pH < 2	28 days
TSS	plastic or glass	cool, 4°C	7 days
Total Kjeldahl Nitrogen (TKN)	plastic or glass	cool, 4°C, H_2SO_4 to pH < 2	28 days
Nitrate + Nitrite Nitrogen	plastic or glass	cool, 4°C, H_2SO_4 to pH < 2	28 days
Total Phosphorus	glass or plastic	cool, 4°C, [illegible]	28 days
pH	plastic or glass	none	immediate
temperature	plastic or glass	none	immediate
Ammonia-Nitrogen	plastic or glass	cool, 4°C, H_2SO_4 to pH < 2	28 days
Nitrate-Nitrogen	plastic or glass	cool, 4°C	48 hrs.
Cyanide (CN)	plastic or glass	cool, 4°C, NaOH to pH > 12	14 days
Fluoride	plastic	none	28 days
Chromium	plastic or glass	HNO_3 to pH < 2	6 months
Chromium +6	plastic or glass	cool, 4°C	24 hrs.
Copper	plastic or glass	HNO_3 to pH < 2	6 months
Lead	plastic or glass	HNO_3 to pH < 2	6 months
Nickel	plastic or glass	HNO_3 to pH < 2	6 months
Silver	plastic or glass	HNO_3 to pH < 2	6 months
Cadmium	plastic or glass	HNO_3 to pH < 2	6 months
Molybdenum	plastic or glass	HNO_3 to pH < 2	6 months
Arsenic	plastic or glass	HNO_3 to pH < 2	6 months
Color	plastic or glass	cool, 4°C	48 hrs.
Fecal Coliform	plastic or glass	cool, 4°C	6 hrs.
Phosphorus Total Radioactive	plastic or glass	cool, 4°C, H_2SO_4 to pH < 2	

Sulfates	plastic or glass	cool, 4°C	28 days
Surfactants	plastic or glass	cool, 4°C	48 hrs.
Aluminum	plastic or glass	HNO_3 to pH < 2	6 months
Boron	plastic or glass	HNO_3 to pH < 2	6 months
Iron	plastic or glass	HNO_3 to pH < 2	6 months
Magnesium	plastic or glass	HNO_3 to pH < 2	6 months
Manganese	plastic or glass	HNO_3 to pH < 2	6 months
Titanium	plastic or glass	HNO_3 to pH < 2	6 months
Uranium			
Zinc	plastic or glass	HNO_3 to pH < 2	6 months
Selenium	plastic or glass	HNO_3 to pH < 2	6 months
Carbon Tetrachloride	glass with teflon-lined septum	cool, 4°C	14 days
1,1-Dichloroethylene	glass with teflon-lined septum	cool, 4°C	14 days
1,1,2,2-Tetrachloroethane	glass with teflon-lined septum	cool, 4°C	14 days
Tetrachloro-ethylene	glass with teflon-lined septum	cool, 4°C	14 days
1,1,1-Trichloro-ethane	glass with teflon-lined septum	cool, 4°C	14 days
1,1,2-Trichloro-ethane	glass with teflon-lined septum	cool, 4°C	14 days
Pentachloro-phenol	glass with teflon-lined cap	cool, 4°C	7 days until extraction; 40 days after extraction
Barium	plastic or glass	HNO_3 to pH < 2	6 months
Mercury	plastic or glass	HNO_3 to pH < 2	28 days
Toluene	glass with teflon-lined septum	cool, 4°C	7 days

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SITE MEDIA SAMPLING PLAN

STORMWATER DISCHARGE NPDES PERMIT PROJECT

ATTACHMENT III

FORM 8-1, STORM EVENT MONITORING/RAIN GAGE TECHNIQUE

STORM EVENT MONITORING
RAIN GAGE TECHNIQUE

8450

FACILITY _____

ADDRESS _____

NAME(S) _____

Date of Storm Event _____

Cutfall Number _____ Composite Volume Needed _____

Bottle No.	Time	Rain Gage Reading	Rain Level	Percent of Event	Volume to Composite
GRAB *				N/A	N/A
1 **					
2 ***					
3					
4					
5					
6					
7					
8					
9					
	TOTALS				

	Time	Rain Gage Reading
Storm End		
Storm Begin		
Storm Duration	hrs.	

Time Since Last Storm Event ****

Date	Time

Grab Sample Temperature _____ Grab Sample pH _____

* 3 liter sample volume required for oil and grease, BOD5, COD, TSS, TKN, NO3, NO2, T-PO_4, within the first 30 minutes of storm.

** The grab sample and first one liter discrete sample should be taken at the same time period.

*** Discrete samples 2 through 9 taken approximately every 20 minutes.

**** Must be greater than 72 hours between storm events for this event to be valid.

(ds/835)

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SITE MEDIA SAMPLING PLAN

STORMWATER DISCHARGE NPDES PERMIT PROJECT

ATTACHMENT IV

PROJECT SPECIFIC HEALTH AND SAFETY PLAN

10CFR834 (DOE REG) DOE ORDER 5400.5 | proposed subparts | RCRA 257 & 258 Codisposal of Municipal & Hazardous Waste

Form 3510-2F: Section IV. B.

As described previously, the FEMP ceased production in July 1989. The FEMP is now dedicated to environmental remediation. The process area is now being utilized primarily for waste storage, as well as support activities such as generation of utilities and wastewater treatment. Solid waste materials associated with uranium metals production are presently stored on site in steel drums. The characterization of these drums of waste has produced waste material defined as hazardous under RCRA, low-level radioactive waste (llrw) material, and waste material that is a mixture of both (mixed waste). Excluding land based hazardous waste management units, all material that has been characterized as hazardous is containerized in drums and stored under cover. Other wastes are currently containerized in drums located on controlled storage pads. Storm water from these pads is collected and treated through the process wastewater system and discharged through currently permitted discharge points. Outdoor drum storage is currently located at the Plant 1 Pad, Plant 8 Pad, Plant 2/3 Pad, and the Pilot Plant Pad.

Other material storage areas located in the production area are the tank farm, the coal pile, and the scrap metal pile. The tank farm was used as the main storage area for process chemicals used in the manufacture of uranium metal. These tanks are now empty. A sump located in the tank farm area collects runoff from the area and pumps this wastewater to the General Sump for processing. The scrap metal pile is used for all types of metal awaiting decontamination. Runoff from this pile is collected and processed through the process wastewater treatment system. The coal pile runoff is currently collected in the Coal Pile Runoff Basin. Water from the basin is pumped periodically to the General Sump for treatment and discharge through NPDES outfall *4602.

The majority of stormwater runoff from the production area is collected in the storm sewer system which combines at Manhole 34. The "Storm Sewer Improvements Project" under CERCLA Removal Action No. 16 will collect all areas not currently collected by the storm sewer system. The Storm Sewer Lift Station (SSLS) can be activated to pump collected stormwater directly to Manhole 175, thence to the Great Miami River. The SSLS is NPDES Permitted outfall *4604. During periods of heavy rains when solids in the runoff becomes a concern, the SSLS is deactivated which allows the collected stormwater to flow to the Stormwater Retention Basin (SWRB) which provides settling of solids. (The completion of the "Manhole 34 Spill Control Project" will alter this procedure by allowing all stormwater collected in the process area storm sewer system to flow to the SWRB. The SSLS discharge to Manhole 175 is planned to be discontinued.) Stormwater in these basins is then pumped to Manhole 175 after 24 hrs. of settling. This discharge is NPDES permitted outfall *4606. In extreme conditions, when the pumping from the basins can not keep up with the influent into the basins, it is possible for the basin to overflow into the Storm Sewer Outfall ditch, thence to Paddy's Run. This outfall is also permitted under the site's current NPDES permit as *4002.

An erosion control program is in place at the FEMP consisting of inspection and protection of storm sewer system catch basins and manholes. This helps in reducing the amount of solids entering the system from construction projects.

Waste storage areas beyond the production area include both the inactive fly ash pile and the active fly ash pile, and the waste pit area.

Prior to 1985, solid and slurried wastes from production processes were disposed of in an on site waste storage area. This area consists of six low-level radioactive waste storage pits, a burn pit, two earthen-bermed concrete silos containing K-65 residues, a concrete silo containing metal oxides, two lime sludge ponds, a sanitary landfill, various construction rubble piles, and a Clearwell.

Waste pit 1 was taken out of service in 1959, covered with clean soil and graded to direct runoff away from the waste pit area. This pit contains waste filter cake, fly ash, scrap graphite, sump cake, depleted slag and uranium.

Waste pit 2 was taken out of service in 1964, covered with clean soil and graded. It contains waste filter cake, sump cake, scrap graphite, construction rubble, depleted slag, and includes an estimated 2,700,000 lbs of uranium and 900 lbs of thorium.

Waste pit 3 was taken out of service in 1977, covered with clean soil and graded. It contains lime-neutralized liquid residue for uranium refining, slag leach residues, filter cake, fly ash, and includes an estimated 290,000 lbs of uranium and 900 lbs. of thorium.

Waste pit 4 was taken out of service in 1986, covered with clean soil and graded. Recently a cap consisting of clay overlain by a Hypalon chlorosulfanated reinforced polyethylene liner was installed. This pit contains process residues, slurries, filter cake, scrap graphite construction rubble, asbestos, an estimated 23,500 lbs. of barium chloride, 1,400,000 lbs. of uranium and 140,000 lbs of thorium.

Waste pit 5 has been out of service since 1985 and remains uncovered. It is a 30-ft deep pond lined with a 60-mil ethylene rubber elastomeric membrane. This pit served as a settling pond for slurried waste from various production processes consisting of neutralized raffinate, slag leach slurry, sump slurry, lime sludge. It contains an estimated 110,000 lbs. of uranium and 38,000 lbs. of thorium. No runoff emanates from pit 5. Rainfall collected in the pit flows by gravity to the Clearwell. The Clearwell pumps this collected stormwater to the Biodenitrification Surge Lagoon (BSL) where it is processed through the Biodenitrification (BDN) system and discharged through NPDES outfall *4605.

Waste pit 6 was taken out of service in 1985 and remains uncovered. It is lined with a 60-mil ethylene rubber elastomeric membrane. It contains process residues consisting of green salt (UF_4), filter cake, and depleted slag. It contains an estimated 950,000 lbs of uranium. No runoff emanates from pit 6. Excess standing water is periodically pumped to the BSL where it is processed through the BDN system and discharged through NPDES outfall *4605.

The Burn Pit was used to dispose of and burn pyrophoric and reactive chemicals, waste oils, and contaminated wood pallets.

The Clearwell originally served as a final settling basin for Pit 3. After Pit 3 was taken out of service and Pit 5 was constructed it served the same

purpose for Pit 5. The Clearwell currently receives stormwater runoff from the majority of Pits 1, 2, and 3 and collected stormwater that accumulates in Pit 5. The Clearwell was a previously permitted outfall to the Great Miami River (*4603). It's contents are now discharged only to the BSL and processed through the BDN system.

Runoff from the entire waste pit area has been addressed as CERCLA Removal Action No. 2; "Waste Pit Area Runoff Control Project". A runoff collection system has been installed (operation commenced July 30, 1992) that collects runoff from the perimeters of the six waste pits, the clearwell, burn pit and the concrete waste storage silos, and discharges the runoff through the BSL-BDN system. The final remediation of this area is pending the Remedial Investigation/Feasibility Study.

The lime sludge ponds receive lime sludge from the FEMP potable water softening process and wastewater treatment processes at the General Sump. These ponds are bermed and therefore no runoff emanates from these ponds.

The active fly ash pile, which lies with in the drainage area to STRM 001, receives fly ash and bottom ash from the burning of coal at the FEMP Boiler Plant. Actions to address wind erosion and runoff control is currently underway. Silt fences have been installed around the perimeter of the pile to minimize solids migration due to runoff. Other actions planned include wind barriers, dust control, and various administrative controls. These actions are being completed as CERCLA Removal Action No. 10.

The sanitary landfill was used between 1954 and 1986. It contains an estimated 18,000 cubic yards of waste consisting of cafeteria waste, non-burnable rubbish, construction rubble, and asbestos. It is now covered by a two foot soil cap. This landfill lies within drainage area STRM 004.

The lime sludge ponds, fly ash piles, and sanitary landfill are all being addressed as Operable Unit 2 under CERCLA.

Adjacent to the Bio-surge Lagoon, and within the drainage area of STRM 003 is a 50,000 gallon methanol storage tank located on a diked storage pad. Methanol is used as the carbon source in the biological conversion of nitrate to nitrogen.

The KC-2 warehouse is a RCRA waste storage facility lying within the drainage area of STRM 004. This facility has been classified as a Hazardous Waste Management Unit and stores liquid, flammable wastes. The FEMP is seeking to permit this warehouse. Materials in this warehouse are not exposed to weather. When complete, the Storm Sewer Improvements project under CERCLA Removal Action No. 16 will collect the runoff from this area.

There are three quonset huts which lie within the drainage area of STRM 004. The eastern most hut contains approximately 700 drums of thorium residues. The other two huts store old equipment. The materials in these huts are not exposed to weather. The Storm Sewer Improvements project under CERCLA Removal Action No. 16 will collect the runoff from this area.

Herbicides are routinely applied at the FEMP on a bi-annual basis. They are primarily used in the process area including graveled areas, railroad lines,

and fence lines. The attached drawing to this section shows the areas of application. Herbicides used include "Krovar", "Princep 80 WP", "Weedar 64", "Roundup", and "Karmex". Purchase orders for the application of herbicides are written to require licensed applicators and EPA approved herbicides. Because of the numerous groundwater monitoring wells located on the plant site, application is prohibited within a 25 foot radius of any well. This requirement is also reflected in the purchase order.

Pesticides are applied at the FEMP exclusively indoors on a preventative basis. Application is monthly implementing a "crack and crevice" method. Pesticides used include "Dursban L.O.", "Whitmire PT 565+", and "Quintox Rodenticide". Purchase orders are written to require the pesticide to be in compliance with P.L. 92-516 and registered with EPA.

Form 3510-2F; Section IV. C.

Structural and Non-Structural Controls:

STRM 001: A silt fence has been placed around the active fly ash pile to minimize the migration of solids due to runoff.

Drainage swales are covered with grasses thus reducing the amount, and velocity, of runoff into Paddy's Run. Steep slopes employ riparian protection reducing erosion. Much of the drainage area is grasslands and wooded areas.

STRM 002: The inactive fly ash pile is overgrown with grasses and trees minimizing the potential of fly ash related solids to run off into Paddy's Run.

STRM 003: The Waste Pit Area Runoff Control Project has effectively diverted runoff from the waste pit perimeter areas from STRM 003 into the FEMP process wastewater system. Stormwater in this area is collected by a system of drains and trenches to a centrally located sump. This sump then discharges this stormwater into the Bio-Surge Lagoon for processing through the Biodenitrification system and eventual discharge through NPDES permitted outfall *4605.

A new 36-inch drainage culvert with headwall has been constructed at a point immediately upstream of the point of entry into Paddy's Run. (This culvert is where the samples for STRM 003 were collected.) Riprap was employed to minimize erosion. Much of the drainage area is wooded.

STRM 004: Much of the drainage area is grassland and wooded areas. The main drainage swale contains vegetative growth, both upstream and down stream of the 60-inch drainage culvert, reducing the amount and velocity of runoff discharged to Paddy's Run. (This culvert is where the samples for STRM 004 were collected.)

The storm sewer improvements project, to be completed under CERCLA Removal Action #16 will further minimize the migration of runoff from the plant process area to each of the four drainage areas. This project will collect previously uncollected runoff around the perimeter of the process area.